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10/786,777	02/25/2004	Daniel Louis Bates	213187/00008	3714

7590 02/10/2006

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EXAMINER	
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ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/786,777	BATES ET AL.	
	Examiner	Art Unit	
	Kevin K. Xu	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments and amendments, see Remarks, pages 1-3, filed 1/17/2006, with respect to certain objections and rejections have been fully considered and are persuasive. See Below.

The objection to claims 1-2 has been withdrawn in view of applicant's amendments.

The rejection to claims 1-2 under 35 U.S.C. 112 has been withdrawn in view of applicant's arguments.

Applicant's arguments filed on 1/17/2006 with respect to claims 1-5 have been fully considered but they are not persuasive. Regarding claim 1, Rangan (6198833) teaches "tracking data associated with a tracked image entity is **associated** with the video stream" (Col 6, lines 42-44) It should be noted that although an image entity, as taught by Rangan, is associated with the video stream, it cannot be assumed that video files are thus, integrated and not separate from video content. Furthermore Rangan teaches "this output video stream comprises the original stream **plus** the synchronous data stream that contains the tracking data and is illustrated as leaving module" (Col 6, lines 48-51). Additionally Rangan teaches "during the tracking process, a **separate** data stream is created, synchronous to the original video stream, that contains the coordinate data for the center position of tracking element determined in each frame" (Col 10, lines 53-56) Therefore, as taught by Rangan in both of these recitations, files

consist of two separate entities: the original video stream data and the tracking data and consequently the video content is in fact separate from linked video files.

Regarding claims 2-3 Vidovic does suggest a video linking system by explaining a videotape recording apparatus. It is well known in the art that a videotape recording apparatus can be considered a video linking system because it links video. For example a videotape recording apparatus may stop video in one frame, then fast-forward and restart the video in another frame and therefore linking the video frames.

Regarding claims 4-5, Toklu does not explicitly disclose a video linking system, which generates linked video files. It should be noted that linking video segments could be interpreted in the art as joining video clips in a sequential or serial manner. Thus, Toklu does teach video summarization methods including **segmenting a video into segments** such as video "shots" and selection one or more **key-frames** from the shots. (Col 1, lines 34-37) It should be noted Rangan also teaches segmenting video to be tracked, frame-by-frame. (Col 6, lines 39-44) and furthermore it is well known in the art that a key-frame (segment break) may be used to indicate the beginning or end of a change made to the video signal.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., requirement for the modification of original video content) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rangan (6198833)

In claim 1, Rangan teaches an image processing system for processing video content in a sequence of video frames and linking one or more pixel objects embedded in said video content to selected data objects in a sequence of video frames by explaining a system is provided for tracking a moving entity in a video presentation, the system comprising a computer station presenting the video presentation on a display as a series of bitmapped frames; and a tracking module receiving the video data stream. (Col 3, lines 26-29); said image processing system comprising a **video capture** system for capturing a frame of said sequence of video frames to be viewed defining a captured video frame by showing a recording function for accepting the positions wherein the pixel signature (defined in the art as a local neighborhood around given pixel) most closely matches the image signature as the true positions of the image entity in the next frames. (Col 3, lines 43-46) and in FIG. 1 input data stream 15

to tracking module 13 is a stream of successive bitmapped frames in a normalized resolution, required by the tracking module. (Col 5, lines 35-37) The authoring station can be based on virtually any sort of computer platform and operating system, and in a preferred embodiment, a PC station running MS Windows is used, in which case the input stream 16, regardless of protocol, is converted to a digital video format that can be interpreted and played back as a sequence of bitmapped frames. (Col 5, lines 37-43) Furthermore Rangan teaches a user interface for enabling a user to select one or more pixel objects in said captured frame defining selected pixel objects. (Col 4 lines 11-35). Additionally Rangan teaches a pixel object tracking system, which includes a processor, which automatically tracks, said selected pixel objects in other frames. (Col 3, lines 26-50). It should be noted that it is well known in the art that a computer system would inherently contain a processor. Rangan also teaches said video linking system generating one or more linked video files, separate from said video content by explaining when tracking element 29 (Fig. 2) is positioned and activated over an image entity to be tracked, a signature table is created and stored (Col 8, lines 40-42) and upon tracking element 29 being activated the tracking module creates a table or list comprising pixel values associated with a target number and spatial arrangement of pixels associated with tracking element 29. (Col 7, lines 40-43). Although Rangan does not explicitly state the generation of video files, it is inherent to the invention that a table or list, which is created by the tracking module and subsequently stored, must implicitly require files for storage function. Lastly, Rangan teaches through additional editing processes, a moving region associated with the image entity in a display may

be made to be interactive and identifiable to an end user. (Col 6, lines 55-57). Rangan further teaches user interaction with such an image entity during viewing of a video can be programmed to provide additional network-stored information about that a entity to suitable customer premises equipment (CPE) adapted to receive and display that information (Col 6, lines 57-62) and such further information may be displayed, for example, as an overlay on the display of the dynamic video containing the subject image entity. (Col 6, lines 62-64) However, Rangan fails to explicitly teach said video linking system generating one or more linked video files separate from said video content, which identify the pixel objects by frame number and location within the file, providing one or more links to data for each pixel. It would have been obvious to one of ordinary skill in the art at the present time the invention was made to utilize user editing processes and programmable capabilities of stored information about an image entity, as taught by Reagan, to identify the pixel objects by frame number and location within a file because it is well known in the art that stored information about an image entity will include information about the image object's frame number and location within the file in order to properly retrieve and display that information. Furthermore, these user programmable abilities allow advertisers, product promoters, or the like to present information to end users based on user interaction with an associate entity in a dynamic video display. (Col 6, lines 64-67)

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangan (6198833) in view of Vidovic (3878557).

Consider claim 2, Rangan teaches a predetermined playback rate by showing in one preferred embodiment the subject video is displayed typically at 30 frames per second with a resolution of 352 by 240 pixels. (Col 5, lines 43-46) However, Rangan fails to explicitly teach said video linking system samples said video content at a sample rate of less than said predetermined playback rate. This is what Vidovic teaches. Vidovic teaches a videotape recording apparatus, which shows color frame pulses separated by 66 milliseconds and have a 15Hz rate (Col 23, lines 56-57 and Fig 17B) It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine a videotape recording apparatus **sampled** at 15Hz as taught by Vidovic with a video linking system displaying video at 30 frames per second as taught by Rangan in order to show the two possible phases of the color frame reference pulses derived from the input color video signal (Col 23, lines 57-60 and Fig 17) and thus, to direct in choosing the correct phase. (Col 7, lines 54-55)

Consider claim 3, Vidovic does not explicitly define a sample rate of three frames per second. However, it would have been obvious to one of ordinary skill in the art at the present time the invention was made to lower a 15 Hz sampling rate for videotape recording as taught by Vidovic to 3 Hz sampling rate because it is well known in the art that it is always practical to lower a sampling rate due to bandwidth or file size limitations.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangan (6198833) in view of Toklu (6549643).

Regarding claim 4, the teachings of Rangan are given in the previous paragraphs of this Office Action. However, Rangan fails to explicitly teach said video linking system is configured to identify segment breaks in said video content. This is what Toklu teaches. Toklu teaches video summarization methods typically include segmenting a video into an appropriate set of segments such as video "shots" and selecting one or more key-frames from the shots. (Col 1, lines 34-37) It should be noted that a key-frame is defined in the art to be a frame used to indicate the beginning or end of a change made to the signal and therefore, an implied segment break. It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine video summarization methods configured to identify segment breaks as taught by Toklu with the image processing system as taught by Rangan in order to reduce the number of images to one or more key-frames to represent the content of a given shot (Col 1, lines 43-45) and thus, to generate a video summary. (Col 1, line 33).

Regarding claim 5, the teachings of Rangan are given in the previous paragraphs of this Office Action. However, Rangan fails to explicitly teach said segment breaks are determined by determining the median average pixel values for a series of frames and comparing changes in the pixel values relative to the median average and indicating a segment break when the change in pixel values represents at least a predetermined change relative to the median average. This is what Toklu teaches. Toklu teaches determining median average pixel values for a series of frames by showing computing an average of an absolute pixel-based intensity difference between

consecutive frames in each segment, and for each segment, computing a cumulative sum of the average of the absolute pixel-based intensity differences for the corresponding frames of the segment. (Col 3, lines 61-67) Toklu also teaches comparing changes in pixel values relative to median average by explaining selecting the first frame in each motion activity segment of a given segment frame if the cumulative sum of the average of the absolute pixel-based intensity differences for the frames of the given segment does not exceed a first predefined threshold. (Col 4, lines 1-5) Lastly, Toklu teaches indicating a segment break when the change in pixel values represents at least a predetermined change relative to the median average by showing selecting a predefined number of key-frames in the given segment uniformly, if the cumulative sum of the average of the absolute pixel-based intensity differences for the frames of the given segment exceeds the first predefined threshold. (Col 4, lines 5-9) It should be noted that a key-frame is defined in the art to be a frame used to indicate the beginning or end of a change made to the signal and therefore an implied segment break. It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine determining the average pixel values for a series of frames, comparing changes in pixel values relative to the average and indicating a segment break when the change in pixel values represents at least a predetermined change relative to the median average as taught by Toklu with the image processing system as taught by Rangan in order to measure a temporal activity curve for dissimilarity based on frame differences. (Col 3, lines 60-62) and thus, make possible in the system and method for selecting key-frames from video data. (Col 3, lines 51-59)

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from examiner should be directed to Kevin K Xu whose telephone number is 571-272-7747. The examiner can normally be reached on Monday-Friday from 9:30 AM – 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EB) at 866-217-9197 (toll-free).

Kevin Xu

2/6/06

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